

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method of controlling a ~~Ventricular Assist Device (VAD)~~ blood pump implanted in a patient, comprising:

operating the ~~VAD~~ pump at a predetermined speed;

monitoring the patient's diastolic ~~VAD~~ pump flow rate, wherein the diastolic pump flow rate is a flow contribution below a mean flow rate; and

changing the predetermined speed in response to the diastolic ~~VAD~~ pump flow rate.

2. (Currently Amended) The method of claim 1, further comprising:

monitoring the patient's heart rate; and

changing the predetermined speed in response to at least one of the diastolic ~~VAD~~ pump flow rate or the heart rate.

3. (Currently Amended) The method of claim 1, wherein changing the predetermined speed includes increasing the ~~VAD~~ pump speed in response to an increase in the diastolic ~~VAD~~ pump flow rate.

4. (Currently Amended) The method of claim 2, wherein changing the predetermined speed includes increasing the ~~VAD~~ pump speed in response to an increase in the heart rate.

5. (Currently Amended) The method of claim 1, wherein changing the predetermined speed includes decreasing the ~~VAD pump~~ speed in response to a decrease in the diastolic ~~VAD pump~~ flow rate.

6. (Currently Amended) The method of claim 2, wherein changing the predetermined speed includes increasing the ~~VAD pump~~ speed in response to an increase in the diastolic ~~VAD pump~~ flow rate.

7. (Currently Amended) A ~~Ventricular Assist Device (VAD)~~ pump system, comprising:

a ~~VAD~~ pump; and

a controller having an input for receiving a blood flow rate signal, the controller being programmed to extract a diastolic ~~VAD pump~~ flow rate from the ~~VAD~~ blood flow rate signal and provide a control signal to the ~~VAD pump~~ to vary the speed of the ~~VAD pump~~ in response to the diastolic ~~VAD pump~~ flow rate, wherein the diastolic pump flow rate is a flow contribution below a mean flow rate.

8. (Currently Amended) The ~~VAD~~ pump system of claim 7, further comprising an implantable flow measurement device having an output for providing the flow rate signal.

9. (Currently Amended) The ~~VAD~~ pump system of claim 7, wherein the controller is further programmed to vary the speed of the ~~VAD~~ pump in response to heart rate changes.

10. (Currently Amended) The ~~VAD~~ pump system of claim 7, wherein the controller is programmed to increase the speed of the ~~VAD~~ pump in response to an increase in the diastolic ~~VAD~~ pump flow rate.

11. (Currently Amended) The ~~VAD~~ pump system of claim 7, wherein the controller is programmed to decrease the speed of the ~~VAD~~ pump in response to a decrease in the diastolic ~~VAD~~ pump flow rate.

12. (Currently Amended) The ~~VAD~~ pump system of claim 9, wherein the controller is programmed to increase the speed of the ~~VAD~~ pump in response to an increase in at least one of the diastolic ~~VAD~~ pump flow rate or the heart rate.

13. (Currently Amended) The ~~VAD~~ pump system of claim 12, wherein the controller is programmed to decrease the speed of the ~~VAD~~ pump in response to a decrease in the diastolic ~~VAD~~ pump flow rate.

14. (Currently Amended) The method of claim 1, further comprising:  
    setting the predetermined speed of the ~~VAD~~ pump in accordance with activities performed  
        by the patient.

15. (Previously Presented) The method of claim 14, wherein the activities are sleeping, normal activity or high energy exertion.

16. (Withdrawn) A method of controlling a Ventricular Assist Device (VAD) blood pump implanted in a patient, comprising:

- operating the VAD, which has a blood output flow rate that is a function of VAD speed;
- monitoring the diastolic VAD flow rate;
- monitoring the patient's heart rate; and
- changing the VAD speed in response to the diastolic VAD flow rate, the heart rate or both.

17. (Withdrawn) The method of claim 16, wherein changing the VAD speed comprises decreasing the VAD speed in response to a decrease in the diastolic VAD flow rate.

18. (Withdrawn) The method of claim 16, wherein changing the VAD speed includes increasing the VAD speed in response to an increase in the diastolic VAD flow rate and/or an increase in the heart rate.

19. (Currently Amended) The ~~VAD~~ pump system of claim 7, further comprising an implantable pressure sensor.

20. (Currently Amended) The ~~VAD~~ pump system of claim 19, wherein pressure sensor data from the pressure sensor may be used to derive diastolic ~~VAD pump~~ pump flow rate information.